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AUTHOR Ogden, Jane
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ABSTRACT

Mathematics achievement test scores of high school students in the Austin Independent School District who graduated before implementation of minimum competency testing were compared to the scores of students who were more recently enrolled in mathematics tutorial classes in order to meet minimum competency requirements. The percentages of graduating seniors who met minimum competency standards in reading was greater when there were high school graduation requirements. It was tentatively concluded that implementation of minimum competency standards and establishment of remedial courses are likely to raise the scores of low achievers on district-wide achievement test results. (MH)

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HIGH SCHOOL COMPETENCY GRADUATION REQUIREMENTS: DO THEY RESULT IN BETTER GRADUATES?

Jane Ogden

Paper presented at the annual meeting of the
American Educational Research Association,
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In any system that attempts to educate all of a citizenry, rather than just the intellectual elite, there are going to be conflicting educational priorities. Add to the principal of mass education the idea that the educational system is also responsible for the socialization and moral development of its charges, and you have succeeded in naming such a multitude of goals and priorities that it is not surprising when many of them go unmet. No one should find it particularly shocking, then, when a few students procede through the standard educational system without acquiring some of the fundamental intellectual tools necessary for success in subsequent jobs or post-high school education.

Lately, however, this phenomenon seems to be on the increase. With growing frequency the complaint is voiced, by employers and college faculties alike, that high school graduates often lack the basic knowledge necessary for successful job training or acceptable college work (Gilman, 1977). There is evidence that this assessment is accurate.

Ebel (1978) pointed out that, "equivalent scores on the 1964 and 1973 editions of the Stanford Achievement Test indicate that a typical student beginning the eighth grade in 1973 could read about as well as a typical student in the middle of the sixth grade ten years ago." The steady decline in SAT scores nationwide attracted such a degree of public attention that the Wirtz Commission was formed to study the problem. A 1976 Gallup poll revealed that the most popular alternative suggestion for improving public instruction was "Devote more attention to teaching basic skills." (Jarrett, 1977). In short, there has been a broad-based, multi-faceted public expression of disappointment and exasperation with the job of educating students done by the nation's schools. One of the most basic issues faced by educators today is the determination of how this state of affairs came to be, and what is to be done about it.

Why Has Student Achievement Declined?

It is apparent that the factors underlying such a broad-based trend in achievement scores are not limited to what happens in the nation's classrooms. Social and cultural phenomena such as television, increased drug use, the deterioration of the nuclear family, and the Vietnam War have all been cited for the role they may have played in depressing the nation's achievement scores (Ebel, 1978; Advisory Panel on the SAT Score Decline, 1977). Ebel (1978) maintains that the schools' role, when faced with declining student achievement linked with these types of societal trends, *should have been* to buckle down, enforce high standards, refuse to accept mediocre performance from students, and warn the general public of the adverse affects such trends were having on student achievement. *Instead,* the schools moved toward *lowering* academic standards, teaching the "whole child" (which sometimes meant an emphasis on personal, rather than academic, development), giving students more freedom, and imposing less structure. In short, the schools followed the public trends, rather than resisting them.

In 1978, the National Academy of Education formed a panel to investigate issues related to achievement testing and basic skills. The panel

identified four school-related factors that they saw as contributing to the decline in achievement scores. These factors seem to support Ebel's theory. They were:

1. The proliferation of courses.
2. Confusion about the appropriate role of teachers.
3. Slackening of "on-task" attention.
4. A dismantling of opportunities for intensive study in selective academic environments at the secondary level.

The point of view here, then, is that the culture, and specifically the culture through the schools, is responsible for the decline in student achievement. The decline is seen as the result of competing priorities in the schools, and confusion as to the schools' appropriate role when faced with a difficult and unstable social environment. The underlying assumption in these accounts is, of course, that the decline in achievement test scores is bad; that it reflects a concommitant decline in student ability and performance. Those who challenge this basic assumption maintain that the achievement tests in question are an inappropriate measure of the kind of learning taking place in schools today. The decline in achievement scores is seen as simply a measure of the increasing inappropriateness of the test (Bracey, 1978). In particular,

1. Students learn more by the audiovisual mode today than in the past (television, instruction by computer), yet standardized tests are still paper-and-pencil. The highest test scores are generally achieved by testing in the same mode used for teaching.

2. The shift in curriculum away from regimented, authoritarian, drill-type lessons toward a more student-oriented style results in a type of knowledge that is not measured well on standardized achievement tests. (Walker and Schaffarzick, 1974). The "new" curricula is generally aimed toward teaching students to be more perceptive of and responsive to their environments, rather than concentrating on the memory and drill techniques that are thought to result in higher test scores.

This line of reasoning contends that today's students are no better or worse than the students of ten or twenty years ago, but that they have received a different *type* of education that cannot be compared to the "old" curriculum on a simple linear scale.

What Should Be Done About the Decline in Achievement Scores?

To those who consider the achievement score decline to be principally a measure of the increasing inadequacy of the measurement instruments, the decline in test scores is obviously no cause for alarm. To others who interpret the downward trend as a reflection of a genuine decline in ability among students, some type of action in response to this trend is called for.

The "back to basics" boom is a kalidescope of programs aimed at increasing students' skills in foundation subjects, usually reading and math, that are essential for instruction in more advanced fields. There is a fear among progressive educators that the "back to basics" movement may in fact be a movement "back" - back to authoritarian, disciplined classrooms where students speak only when spoken to, and the sum total of their education is an impressive list of memorized multiplication tables and dates of historical events. The report of the NAED panel warns against this possibility, and suggests instead that educators look to current educational research for reports on teaching techniques that are successful without being dictatorial. For instance, literature indicates that "time on task" is an important predictor of student achievement (Hester and Ligon, 1978). Time on task can be increased in a variety of ways, many of which do not necessitate a "line 'em up in rows and tell 'em what to do" approach to classroom teaching.

The minimum competency testing movement is an integral part of the back to basics movement. If test scores are one of the important indicators of a problem in today's schools, then it seems reasonable that those scores should be used as a measure of any change in the status of the problem. Riding on the coattails of the back to basics boom, then, is the minimum competency testing boom.

The Minimum Competency Movement

Various types of minimum competency requirements have been established in school districts across the nation. As of December, 1977, there were eighteen states that required a passing grade on a minimum competency test as a prerequisite for high school graduation. At that time, minimum competency requirements of some kind (not always linked to high school graduation) were in effect or being studied in all but three states (Basic Skills Assessment Around the Nation, 1977; Pipho, 1977). Most of these plans include testing in basic subjects - reading, math, and sometimes writing - and providing for remedial work for students who fail to meet the minimum standards.

The minimum competency testing boom is an attempt to address the problem of low achievement in the nation's schools. There is by no means, however, a simple logical sequence from the problem of low student achievement to the establishment of minimum competency testing requirements. There are several leaps of faith along the way:

- There is not an agreement that there <u>is</u> a decline in student achievement. Some educators interpret the decline in test scores as a reflection of the increasing inappropriateness of standardized tests for measuring the type of education taking place in today's schools.

- The minimum competency boom took hold without adequate attention devoted to the problem of deciding which minimum competencies are necessary for post-high school endeavors. The time and effort spent on <u>measuring</u> the competencies typically far outweigh that invested in deciding what minimum competencies <u>are</u>.

- Minimum competency testing only defines the problem. There has not been a concomitant boom in research on remedial teaching techniques, curricula, or materials.

- The tests used for this purpose are often inappropriate. Nationally standardized norm referenced tests, for instance, are designed to increase the variance among unusually high or low scores. In addition, they may or may not address the competencies defined as minimum in a given school district.

- The legality of denying a high school diploma to a student on the basis of a minimum competency test is questionable (McClung, 1978). The state's obligation to students who cannot pass such a test has not been defined. It has been suggested that the state's obligation is to provide an opportunity for students to learn, but not to take responsibility for their subsequent success or failure (Mecklenberger, 1978).

In short, the minimum competency testing boom can be gloomily viewed as a misguided and possibly illegal attempt to measure an ill-defined problem with inappropriate instruments, coupled with a failure to propose how the problem should be remediated once so measured. Nonetheless, the competency testing boom is a political reality. In spite of the proliferation of valid criticisms of competency testing, there is an opportunity here to address the real problem of underachievement in the nation's schools. This paper will review the competency testing requirements and procedures in the Austin Independent School District, and present some preliminary ideas as to the effects the minimum competency program has had on the achievement of AISD high school students.

AISD Minimum Competency Requirements

In the spring of 1975, the AISD Board of Trustees implemented the minimum competency requirements for graduation from high school. The requirement policy reads as follows:

Reading: Students will be required to demonstrate at least an eighth grade competence in reading or place on file a letter signed by parent or guardian acknowledging that the student proposes to graduate without achieving an eighth grade level in reading.

Mathematics: Students will be required to demonstrate at least an eighth grade competence in mathematics or place on file a letter signed by parent or guardian acknowledging that the student proposes to graduate without achieving an eighth grade level in mathematics.

These requirements apply only to students who are subject to all other standard graduation requirements. Some special education students are exempt, as are students who transfer into AISD after the first quarter of their senior year. Also, these requirements apply only to students who entered high school after the policy was implemented; therefore the freshman class entering in the fall of 1975 was the first class to be affected by the minimum competency requirement. Most of those students are seniors in the 1978-79 school year. The AISD graduating class of 1979, then, is the first class that is required to meet the minimum comptency requirements as a prerequisite for high school graduation.

Measuring the Attainment of Minimum Competency

A student can demonstrate "eighth grade competence" in reading and math in any one of the following ways:

1. The California Achievement Test, form A, is routinely administered to all students in grades 1-8 in the spring of each school year. Any eighth grade student who scores at the fiftieth percentile or above on the reading and math subtests of the CAT had already met the high school graduation competency requirements.

2. The Sequential Tests of Educational Progress are routinely administered to all AISD students in grades 9-12, in the spring of each school year. Any student who scores the equivalent of a median eighth grade score on the reading and math subtests of the STEP has met the high school graduation requirements.

3. Special high school tutorial courses are offered for students who have completed their required coursework in reading and/or math, but who have still not met the competency requirement. At the end of each quarter, the reading/math subtest of the eighth grade level of the California Achievement Test, form B, is administered to tutorial students as a final exam. Any student scoring at or above the eighth grade median on these special administrations has met the high school competency requirement.

4. As a final option, students who have completed at least one quarter of reading/math tutorial and who have failed to meet the competency requirement on any administration of the CAT or the STEP may opt to place on file a letter signed by their parent or guardian requesting that the student be allowed to graduate without meeting the minimum competency requirements.

What Have Been the Effects of AISD's Minimum Competency Requirements?

The most direct and obvious result of the implementation of these minimum standards has been the establishment of tutorial courses for students who have not met the competency requirements by the time they have completed the required coursework in reading or math. In math, there are

two years (6 quarters) of required courses; in reading there are three years of required courses. Therefore, a student's first chance to enroll in math tutorial is usually the beginning of the junior year. The first chance to enroll in reading tutorial is usually the beginning of the senior year. Students may enroll in these tutorial classes repeatedly until they succeed in meeting the minimum competency standards, and they are *required* to enroll in tutorial at least once before a letter vaivering the competency requirement will be accepted.

The establishment of a minimum competency requirement in AISD, then, has resulted in an increased emphasis on teaching basic reading and math skills to students who have not learned them in the standard, required high school courses. It seems intuitively correct that the increased availability of remedial instruction for students who have not yet mastered basic skills represents an improvement in the education offered to those students. Rather than being shuffled from one failing situation to another, in courses that are over their heads and must seem increasingly mystifying, these students are now placed in classes that address them at their level of scholastic development. An interesting question, then, is whether or not this intuitively appropriate approach to educating slow students has resulted in any improvement in the standardized achievement test scores that reflect their abilities in reading and math. This question is addressed here in two forms:

1. The class of eleventh grade students in the 1977-78 school year was the first class to be affected by the minimum competency graduation requirements, and the first class for whom special tutorial classes in math were made available. All of the students enrolled in math tutorial that year had failed to meet the math competency requirement on previous administrations of districtwide standardized achievement tests, and all were required to meet the minimum competency standards in order to graduate.

   Students who were in the eleventh grade during the *previous* school year (1976-77) were not subject ot the minimum competency testing requirements, and did not have the option of enrolling in tutorial courses. It is possible to define the group of students in this class, however, who *would have been* required to enroll in math tutorial, had it been available, because their scores on previous districtwide standardized achievement tests were below the minimum set for demonstrating eighth grade competence.

   These two groups of students can then be compared: Eleventh graders who had failed to meet the math competency requirements on several previous testing occasions and who were *not* required to enroll in tutorial classes or to meet the minimum competency requirements for graduation, and eleventh graders the following school year, who had also failed to meet the minimum standards on districtwide achievement tests, but who *were* required to enroll in tutorial courses and demonstrate competency as a prerequisite for graduation.

2. Seniors who graduated from AISD high schools in the 1977-78 school year were not subject to the minimum competency testing requirements in reading or math. Those who graduate in 1978-79 are subject to both minimum requirements. The percentage of seniors who graduated in 1977-78 who would not have graduated if the reading and math competency requirements had been in effect can be compared to the percentage of seniors who are scheduled to graduate in May of 1979, but who have not yet met the competency requirements.

Results and Conclusions

The results of the two types of comparisons outlined above are presented in Tables 1 and 2.

The data in Table 1 indicate that the percentage of students who had not met the math competency requirements prior to the beginning of their junior year, and who succeed in meeting those requirements at the end of that year, is greater for students who are required to demonstrate competency as a prerequisite for graduation than for those who are not. This is true for both math subtests on the STEP, although the difference is more dramatic on math computations than on the math concepts test. (Minimum competency standards on both subtests must be met to fill the graduation requirement.)

The figures in Table 2 reflect the same trend that is evident in Table 1. The percentages of graduating seniors who meet the minimum competency standards in reading and mach are greater when those standards are a prerequisite for graduation.

The only direct conclusion one can draw from these data is that the implementation of minimum competency standards as a prerequisite for graduation, coupled with the establishment of remedial courses for students who have not met the requirement at some point in their high school work, is likely to raise the bottom scores on districtwide achievement test results. The reason for the raise is at this point unknown. Possibilities include:

1. The special tutorial classes offered to high school students who have not demonstrated eighth grade competence in reading and math may be making a substantial contribution to those students' achievement.

2. The increased importance of the achievement tests may cause students to take the tests more seriously and try harder, resulting in higher scores.

3. Since high school students who have not met the competency requirement are granted several opportunities to take the criterion test, it is possible that students become familiar with the particular items on the test, and their scores increase due to practice effects. This factor would not explain the increase in scores on the STEP, since the STEP is still administered in AISD on an annual basis, in the spring of each school year. Therefore there would be no

Table 1

Percent of Eleventh Graders Attaining Math Competency for the First Time on the STEP, Before and After Competency Requirements were Implemented.

	Percent Meeting Math Competency for the First Time on the End-of-Year Eleventh Grade STEP	
	STEP MATH COMPUTATION	STEP MATH CONCEPTS
1976-77 eleventh graders (Not subject to competency requirements) who had not met math competency in September (N=301)	4.0%	11.3%
1977-78 eleventh graders (subject to competency requirements) who had not met math competency in September (N=358)	11.7%	15.6%

Table 2

Percent of Graduating Seniors Failing to Attain Minimum Competency, Before and After Competency Requirements Went into Effect.

	READING	MATH
1977-78 Graduating Class (Not subject to competency requirements)	14.7%	27.0%
1978-79 Graduating Class (subject to competency requirements)	3.8%	5.1%

practice effect operating in the trend evident in Table 1. The data in Table 2, however, reflect achievement scores on the STEP as well as scores on the CAT, form B, that is administered to tutorial students at the end of each quarter. It is likely that a practice effect is present in these data.

Discussion

These data indicate that minimum high school competency graduation requirements do result in higher achievement test scores for low-achieving students. The reason for this increase, and therefore the true educational impact of minimum competency programs on low-achieving students, cannot be determined from these preliminary data.

The scores reported here also reflect the unavoidable dilemma of the few students who, in spite of repeated remedial courses and multiple testings, will persist in failing to meet minimum competency standards. The policy of the Austin Independent School District is to allow these students to graduate without meeting the competency requirements, after they have completed at least one tutorial class, if they submit a letter signed by their parent or guardian asking for the requirement to be waived. This is perhaps the only solution possible. Teaching and learning are integral parts of the same process. It is unrealistic for one component of that process - the teacher, or in a larger sense, the school district - to guarantee a given minimal outcome for all learners. It <u>is</u> the obligation of the school, however, to make all reasonable efforts to teach low-achieving students the basic skills necessary for some type of successful endeavor after high school. The minimum competency testing boom, by calling attention to these low-achieving students and by assigning priority to their dilemma, may well have contributed to the quality of the education received by those students.

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